10/785,285

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NEWS	11	DEC 01	LISA now available on STN

NEWS EXPRESS	OCTOBER 29 CURRENT WINDOWS VERSION IS V7.01A, CURRENT MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP), AND CURRENT DISCOVER FILE IS DATED 11 AUGUST 2004
NEWS HOURS	STN Operating Hours Plus Help Desk Availability
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FILE 'HOME' ENTERED AT 12:22:10 ON 05 DEC 2004

=> set abbr on perm
SET COMMAND COMPLETED

=> set plurals on perm
SET COMMAND COMPLETED

=> file uspatall japio caplus
COST IN U.S. DOLLARS

	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	1.26	1.26

FILE 'USPATFULL' ENTERED AT 12:25:39 ON 05 DEC 2004
CA INDEXING COPYRIGHT (C) 2004 AMERICAN CHEMICAL SOCIETY (ACS)

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=> s polymer? (1a)(reactor or reaction chamber or reaction zone)
L1 17015 POLYMER? (1A)(REACTOR OR REACTION CHAMBER OR REACTION ZONE)

=> s (reactor or reaction chamber or reaction zone)(5w)(rod# or plunger#)
L2 7749 (REACTOR OR REACTION CHAMBER OR REACTION ZONE)(5W)(ROD# OR PLUNGER#)

=> s l1 and l2
L3 25 L1 AND L2

=> d l3 1-25 ibib abs

L3 ANSWER 1 OF 25 USPATFULL on STN
ACCESSION NUMBER: 2004:216191 USPATFULL
TITLE: Heat exchanger **polymerization reactors** for manufacturing drag reducing agents
INVENTOR(S): Kommareddi, Nagesh S., Broken Arrow, OK, UNITED STATES
Mathew, Thomas, Tulsa, OK, UNITED STATES
Harris, Jeffery r., Tulsa, OK, UNITED STATES
Motier, John F., Broken Arrow, OK, UNITED STATES

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2004167300	A1	20040826
APPLICATION INFO.:	US 2004-785285	A1	20040224 (10)

RELATED APPLN. INFO.: Continuation-in-part of Ser. No. US 2003-373361, filed on 24 Feb 2003, PENDING
DOCUMENT TYPE: Utility
FILE SEGMENT: APPLICATION
LEGAL REPRESENTATIVE: PAUL S MADAN, MADAN, MOSSMAN & SRIRAM, PC, 2603 AUGUSTA, SUITE 700, HOUSTON, TX, 77057-1130
NUMBER OF CLAIMS: 43
EXEMPLARY CLAIM: 1
NUMBER OF DRAWINGS: 2 Drawing Page(s)
LINE COUNT: 988
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Temperature control and efficient heat transfer are important to producing high quality polymer drag reducing agents from alpha-olefin and/or other monomers. Many polymerization reactions are exothermic, and controlling or minimizing the exotherm combined with low reaction temperatures yields high molecular weight and, for poly(alpha-olefins), high quality drag reducing agent polymers. It has been found that a shell and tube heat exchanger-type reactor, with the inner tubes hosting the reaction mixture and a coolant circulating through the shell side gives good temperature control. The use of appropriate release agents helps to keep the inner reaction chambers from building up any polymer residue. These reactors can be operated in a continuous filling and harvesting mode to facilitate the continuous production of polymer drag reducing agent and related formulations.

gel polymerization of water-soluble monomers on a belt **reactor** or in a **plunger**-type reactor. The polymer gels formed in each case must be comminuted in relatively expensive steps.

SUMM A similar process is disclosed in EP-A-0 238 050, in which the copolymerization, for example of methacrylic acid or acrylic acid, which may be neutralized with an alkali metal base, and a crosslinking agent is carried out in a plurality of stages in a batchwise mixing apparatus with continuous thorough mixing in all stages, in the first stage of the polymerization the aqueous monomer solution being copolymerized at from 45° to 95° C. and from 0.1 to 0.8 bar with partial removal of water by distillation, and in the second stage the copolymerization being completed at from 100° to 170° C. and not more than 8 bar and, after the pressure has been let down, the water content of the resulting finely divided, crosslinked copolymer being reduced to 0.5-10% by weight in the third stage. In the two last-mentioned processes, a crumb-like polymer gel is formed and can be only partially dried in the **polymerization reactor.** During the subsequent polymerization and during the drying, the polymer gel is subjected to stronger or weaker shearing, resulting in an undesirable change in the gel structure.

SUMM The aqueous monomer solutions stated in the Examples are introduced into a single-screw kneader preheated to a wall temperature of 60° C. As soon as the temperature of the monomer solution has increased to 40° C., 25 ml of a 3% strength aqueous solution of 2,2-azobis-(amidinopropane) dihydrochloride are metered in. After a short induction time, the temperature of the reaction mixture begins to increase and reaches its maximum value within a short time. The resulting polymer gel begins to disintegrate into coarse fragments. About 1 minute after the maximum temperature has been reached, 1%, based on the amount of monomer, of a surfactant stated in each of the Examples is metered in. As a result, division of the coarsely crumb-like polymer gel into small particles occurs within a few seconds. At the same time, the power consumption of the stirrer, which has increased during the **polymerization reaction**, decreases to the value measured before the beginning of the polymerization during stirring of the monomer solution having virtually the viscosity of water. After subsequent polymerization for about 5 minutes, the polymer gel is discharged from the reactor and dried in a drying oven under reduced pressure. The polymerization is carried out under a nitrogen atmosphere in all cases.

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=> d his

     (FILE 'HOME' ENTERED AT 12:22:10 ON 05 DEC 2004)
               SET ABBR ON PERM
               SET PLURALS ON PERM

     FILE 'USPATFULL, USPAT2, JAPIO, CAPLUS' ENTERED AT 12:25:39 ON 05 DEC 2004
L1         17015 S POLYMER? (1A)(REACTOR OR REACTION CHAMBER OR REACTION ZONE)
L2          7749 S (REACTOR OR REACTION CHAMBER OR REACTION ZONE)(5W)(ROD# OR PL
L3            25 S L1 AND L2
L4           148 S (REACTOR OR REACTION CHAMBER OR REACTION ZONE)(4W)(PLUNGER#)
L5            18 S L4 AND POLYMERIZATION (1A)(REACTOR OR REACTION)

=> log y
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                       ENTRY    SESSION
FULL ESTIMATED COST                                   166.82     168.08

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)          SINCE FILE      TOTAL
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